

Application No. 09/596,826
Reply to Office Action of Jun. 4, 2004
Amendment Dated Sep. 7, 2004

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.
Please cancel Claims 1-14, 21-24, 33-35 and add Claims 36-73 as follows:

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Canceled)
10. (Canceled)
11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Original) A method for operating a telecommunications system, comprising:
receiving a message from a telecommunication component;
determining whether a memory capacity assigned to a grouping of links is sufficient
5 to contain the message; and
transmitting the message when the memory capacity is sufficient to contain the
message.

16. (Original) The method of Claim 15, further comprising:
determining whether a memory capacity assigned to a link is sufficient to contain a
message;
transmitting the message when both the memory capacity assigned to the grouping
5 of links and the memory capacity assigned to the link are each sufficient to contain the
message; and
applying back pressure to the telecommunication component when at least one of the
memory capacity assigned to the grouping of links and the memory capacity assigned to the
link are insufficient to contain the message.

17. (Original) The method of Claim 16, further comprising incrementing a link
counter related to the link and a group counter related to the grouping of links when both the
memory capacity assigned to the grouping of links and the memory capacity assigned to the
link are each sufficient to contain the message.

18. (Original) A telecommunications system, comprising:
receiving means for receiving a message from a telecommunication component;
determining means for determining whether a memory capacity assigned to a
grouping of links is sufficient to contain the message;
5 transmitting means for transmitting the message when the memory capacity is
sufficient to contain the message.

19. (Original) The system of Claim 18, further comprising:
determining means for determining whether a memory capacity assigned to a link is
sufficient to contain a message;
transmitting means for transmitting the message when both the memory capacity
5 assigned to the grouping of links and the memory capacity assigned to the link are each
sufficient to contain the message; and
applying means for applying back pressure to the telecommunication component
when at least one of the memory capacity assigned to the grouping of links and the memory
capacity assigned to the link are insufficient to contain the message.

20. (Original) The system of Claim 18, further comprising incrementing means
for incrementing a link counter related to the link and a group counter related to the grouping
of links when both the memory capacity assigned to the grouping of links and the memory
capacity assigned to the link are each sufficient to contain the message.

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Original) A method for operating a telecommunications system, comprising:
determining whether a counter is the same as or exceeds a predetermined level, the
counter being related to a memory capacity of a computational component;
when the counter is the same as or exceeds the predetermined level, transmitting an
5 update message to a second computational component; and
when the counter is not the same as or in excess of the predetermined level, delaying
the transmission of the update message to the second computational component.

26. (Original) The method of Claim 25, further comprising before the determining
step receiving an acknowledge message from a telecommunications device.

27. (Original) The method of Claim 25, wherein the counter includes at least one
of a group counter related to a grouping of links and a link counter related to a specific link
and the group counter tracks a memory capacity assigned to the grouping of links and the link
counter a memory capacity assigned to the specific link.

28. (Original) The method of Claim 25, wherein the counter includes at least one
of a group counter related to a grouping of links and a link counter related to a specific link
and the group counter tracks a memory capacity assigned to the grouping of links and the link
counter a memory capacity assigned to the specific link and further comprising incrementing
5 or decrementing the counter to indicate an unused portion of the memory capacity.

29. (Original) A telecommunications system, comprising:

determining means for determining whether a counter is the same as or exceeds a predetermined level, the counter being related to a memory capacity of a computational component;

5 transmitting means for transmitting an update message to a second computational component, when the counter is the same as or exceeds the predetermined level; and

 delaying means for delaying the transmission of the update message to the second computational component when the counter is not the same as or in excess of the predetermined level.

30. (Original) The system of Claim 29, further comprising receiving means for receiving an acknowledge message from a telecommunications device.

31. (Original) The system of Claim 29, wherein the counter includes at least one of a group counter related to a grouping of links and a link counter related to a specific link and the group counter tracks a memory capacity assigned to the grouping of links and the link counter a memory capacity assigned to the specific link.

32. (Original) The system of Claim 31, further comprising means for incrementing or decrementing the counter to indicate an unused portion of the memory capacity.

33. (Canceled)

34. (Canceled)

35. (Canceled)

Please add the following new Claims 36-73:

36. (New) A communications system, comprising:

a controller for controlling a plurality of telecommunications subsystems, each telecommunications subsystem including:

a plurality of telecommunications devices and

5 one or more communication interfaces for interfacing between the plurality of telecommunication devices and the controller;

a communication line connecting the controller with each of the telecommunications subsystems to form a network;

a first memory accessible by the controller, the memory including one or more flow control counters; and

10 a second memory accessible by a processor in the communication interface, the second memory including one or more buffer status counters.

37. (New) The system of Claim 36, wherein the one or more flow control counters indicate one of a memory capacity in use and a free memory capacity and the one or more buffer status counters indicate the other of the one of a memory capacity in use and a free memory capacity.

38. (New) A method for managing a telecommunications system, comprising:
receiving a message; and

at least one of incrementing or decrementing a counter in response to the message, the counter being related to the capacity of a memory accessed by a telecommunications component, wherein the counter includes at least one of a group counter related to a grouping of links and a link counter related to a specific link, and the group counter tracks a memory

capacity assigned to the grouping of links and the link counter a memory capacity assigned to the specific link.

39. (New) A computer readable medium comprising instructions to perform the steps of claim 38.

40. (New) A telecommunications system, comprising:
receiving means for receiving a message; and
processing means for at least one of incrementing or decrementing a counter in response to the message, the counter being related to the capacity of a memory accessed by
5 a telecommunications component, wherein the counter includes at least one of a group counter related to a grouping of links and a link counter related to a specific link and the group counter tracks a memory capacity assigned to the grouping of links and the link counter a memory capacity assigned to the specific link.

41. (New) A method for operating a telecommunications system, the system comprising a controller, one or more telecommunication devices, and a communication interface positioned between and in communication with the controller and the one or more telecommunication devices, comprising:
5 (a) the controller determining whether at least one selected buffer maintained by the communication interface has sufficient available capacity to buffer a message;
(b) when the at least one selected buffer has sufficient available capacity, performing the substeps of:
(B1) the controller transmitting the message to the communication interface;
10 and
(c) when the at least one selected buffer does not have sufficient available capacity, the controller not currently transmitting the message to the communication interface.

42. (New) The method of claim 41, wherein the message comprises a message identifier identifying the at least one selected buffer in the communication interface, the message identifier identifies at least one of a type and index corresponding to the message, and wherein step (b) comprises the further substep of:

- 5 (B2) the communication interface writing the message to the at least one selected buffer.

43. (New) The method of claim 42, wherein the message identifier identifies one of a flow control message, a fault code message, a counter value message, an initialization message, a link update message, a command message, a response message, and a control message.

44. (New) The method of claim 43, wherein the message identifier identifies a flow control message and the flow control message comprises a plurality of: a record field set to a number of update records held by the message, a link and/or link grouping identifier identifying a set of links between the one or more telecommunication devices and the interface, and an acknowledge field including a number of packets that have been
5 acknowledged for the link identifier since a last flow control message was transmitted and/or received.

45. (New) The method of claim 43, wherein the message identifier identifies a counter value message requesting a counter value and wherein the counter value is related to at least one of the memory capacity of the communication interface and a set of links between the one or more telecommunication devices and the interface.

46. (New) The method of claim 41, wherein the controller is a packet control driver in a telecommunications switch and the communication interface is a packet interface and the determining step comprises:

tracking a number of unacknowledged messages transmitted by the controller to the communication interface.

47. (New) The method of claim 41, wherein the one or more telecommunication devices is a plurality of telecommunication devices, a plurality of links of different types connect the telecommunication devices to the communication interface, the links being grouped into a number of link sets, each link set comprising at least one member, space in
5 the buffer is divided among the plurality of link sets, and the determining step comprises the substep of:

(A1) examining a flow control counter, each flow control counter corresponding to the portion of buffer space allocated to a corresponding link set.

48. (New) The method of claim 47, wherein the flow control counter is related to an unused buffer space portion.

49. (New) The method of claim 47, wherein the flow control counter is related to a used buffer space portion.

50. (New) The method of claim 48, wherein the examining step comprises:
the controller comparing the memory required for the message with the flow control counter.

51. (New) The method of claim 47, wherein step (b) is performed and comprises the substep of:

(B3) the controller one of incrementing and decrementing a flow control counter to reflect the buffer space occupied by the transmitted message.

52. (New) The method of claim 47, wherein step (b) is performed and an acknowledge is received by the controller and further comprising:

(d) the controller the other one of incrementing and decrementing a flow control counter to reflect that the buffer space formerly occupied by the message is available.

53. (New) The method of claim 47, wherein the flow control counter comprises a link flow control counter corresponding to a first buffer space allocated to a first link set comprising a selected link and a link grouping flow control counter corresponding to a second buffer space allocated to a second link set comprising plurality of links of the same type.

54. (New) The method of claim 51, wherein an amount by which the flow control counter is incremented or decremented is directly related to a buffer memory capacity to be used by the message.

55. (New) The method of claim 47, wherein the controller maintains a first flow control counter set and the interface maintains a second flow control counter set, wherein each of the flow control counters in the first flow control counter set signifies an amount of buffer space in use by a corresponding link set, and wherein each of the flow control counters in the second flow control counter set signifies an amount of buffer space allocated to a corresponding link set.

56. (New) The method of claim 55, wherein each of the flow control counters in the first flow control counter set are related to a number of unacknowledged messages sent

to the buffer of the interface and each of the flow control counters in the second flow control counter set are related to a number of acknowledged messages sent to the interface's buffer.

57. (New) A computer readable medium comprising instructions to perform the steps of claim 41.

58. (New) A telecommunications system, comprising:
a controller for controlling a plurality of telecommunications subsystems, each telecommunications subsystem including:

at least one telecommunication device and
5 at least one communication interface for interfacing between the at least one telecommunication device and the controller; and

a communication line connecting the controller with each of the telecommunications subsystems to form a network, wherein the controller is operable to perform the following operations:

- 10 (i) determine whether a memory of the communication interface has sufficient available capacity to store the message;
- (ii) when the memory has sufficient available capacity, transmit a message to the communication interface; and
- (iii) when the memory does not have sufficient available capacity, not
15 currently transmit the message to the communication interface.

59. (New) The system of claim 58, wherein the memory is at least one selected buffer, the message comprises a message identifier identifying the selected buffer in the communication interface, and the message identifier identifies at least one of a type and index corresponding to the message.

60. (New) The system of claim 59, wherein the message identifier identifies one of a flow control message, a fault code message, a counter value message, an initialization message, a link update message, a command message, a response message, and a control message.

61. (New) The system of claim 60, wherein the message identifier identifies a flow control message and the flow control message comprises a plurality of: a record field set to a number of update records held by the message, a link and/or link grouping identifier identifying a set of links between the one or more telecommunication devices and the interface, and an acknowledge field including a number of packets that have been
5 acknowledged for the link identifier since a last flow control message was transmitted and/or received.

62. (New) The system of claim 60, wherein the message identifier identifies a counter value message requesting a counter value and wherein the counter value is related to at least one of the memory capacity of the communication interface and a set of links between the one or more telecommunication devices and the interface.

63. (New) The system of claim 60, wherein the controller is a packet control drive in a telecommunications switch and the interface is a packet interface and wherein the determining operation comprises the suboperation of:

tracking a number of unacknowledged messages transmitted by the controller to the communication interface.

64. (New) The system of claim 59, wherein the at least one telecommunication device is a plurality of telecommunication devices, a plurality of links of different types connect the telecommunication devices to the communication interface, the links being

grouped into a plurality of link sets, each link set comprising at least one member, space in
5 the buffer is divided among the plurality of link sets and the determining operation comprises
the suboperation of:

examining a flow control counter, each flow control counter corresponding to the
portion of buffer space allocated to a corresponding link set.

65. (New) The system of claim 64, wherein the flow control counter is related to
an unused buffer space portion.

66. (New) The system of claim 64, wherein the flow control counter is related to
a used buffer space portion.

67. (New) The system of claim 65, wherein the examining operation comprises
the suboperation of:
comparing the memory required for the message with the control counter.

68. (New) The system of claim 67, wherein operation (ii) is performed and
comprises the suboperation of:
one of decrementing and incrementing a flow control counter to reflect the buffer
space occupied by the transmitted message.

69. (New) The system of claim 68, wherein an acknowledge is received by the
controller and the controller being further operable to the other one of decrement and
increment a link flow control counter to reflect that the buffer space formerly occupied by
the message is available.

70. (New) The system of claim 64, wherein the flow control counter comprises a link flow control counter corresponding to a first buffer space allocated to a first link set comprising a selected link and a link grouping flow control counter corresponding to a second buffer space allocated to a second link set comprising plurality of links of the same type.

71. (New) The system of claim 68, wherein an amount by which the flow control counter is incremented or decremented is directly related to a buffer memory capacity to be used by the message.

72. (New) The system of claim 64, wherein the controller maintains a first flow control counter set and the interface maintains a second flow control counter set, wherein each of the flow control counters in the first flow control counter set signifies an amount of buffer space in use by a corresponding link set, and wherein each of the flow control counters in the second flow control counter set signifies an amount of buffer space allocated to a corresponding link set.

73. (New) The method of claim 72, wherein each of the flow control counters in the first flow control counter set are related to a number of unacknowledged messages sent to the buffer of the interface and each of the flow control counters in the second flow control counter set are related to a number of acknowledged messages sent to the interface's buffer.